MAGMA relies on hybrid algorithms that match algorithmic requirements to the architectural strengths of the system’s hybrid components. Small non-parallelizable tasks, often on the critical path, are scheduled on the CPU, and larger more parallelizable ones, often Level 3 BLAS, are scheduled on the GPU.

A complementary to CUBLAS subset of CUDA BLAS that are crucial for the performance of MAGMA routines.

FEATURING:
- Auto-tuned kernels
- Removed performance “dips” for “bad” matrix sizes
- GEMM tuned for rectangular matrices
- SYRK, GEMV, and SYMV
- TRSM of high parallelism/performance (trade-off for numerical stability)

PERFORMANCE RESULTS

CPU Intel Xeon 2.33 GHz, 8 cores, s/d gemm peak 128/65 GFlop/s
GPU NVIDIA GTX280 1.33 GHz, s/d gemm peak 375/75 GFlop/s

FIND OUT MORE AT http://icl.eecs.utk.edu/magma/